

1

Measurements



Teaching / Learning tools

thread, school bag, stop clock, and thermometer

MON	TUE	WED	THU	FRI



Spotlight

- ◆ Acquire knowledge on the necessity of using measurement in our daily life.
- ◆ Understand the concept of international system of units or SI units.
- ◆ Get to know about the measuring tools.



Learning Objectives

At the end of the lesson, students will be able to

- ◆ know what measurement is
- ◆ understand fundamental units and derived units
- ◆ identify zero error and parallax error
- ◆ learn the units for various physical quantities
- ◆ implement corrective measures for measurement
- ◆ use various measuring instruments



Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ define length, mass, time and volume
- ◆ measure the volume of solid, liquid, and gas
- ◆ use beam balance and electronic balance
- ◆ apply the concept of measurement in day-to-day activities
- ◆ evaluate the value of physical quantities
- ◆ gain knowledge about units and subunits

Introduction



Transactional Strategy

Teaching-Learning method



Classroom Situation

- ❖ The teacher can bring long and short threads to class. He/ She has to clarify to students that to know the exact length of each thread, measurement has to be taken, thereby introducing the concept of length.

- ❖ The teacher should describe the type of measurement to be used for different purposes using practical examples.



- ❖ The teacher can ask the students to carry their school bags. In order to know the exact weight, balance machine has to be used. The concept of mass can be introduced now.
- ❖ The teacher can make the student run in the ground for a certain distance. To know how fast the student has run, the specified distance has to be measured. The concept of time is now introduced.
- ❖ The teacher can bring a thermometer to teach about the temperature of human body.
- ❖ The teacher can have a general discussion on the above topics with students. He/She can explain the significance of measurements and add how they are done.



<https://www.youtube.com/watch?v=ypVQDZL18SQ>

- ❖ With these examples as base, the importance of derived quantities can be explained.

(Video: Measurement)

Teaching-Learning method

Physical quantities—Fundamental quantities

- ❖ After introducing length and other measuring concepts, teach the students that the measuring quantities are expressed as fundamental quantities.
- ❖ In order to maintain uniformity in measuring quantities across the world the SI units were introduced.
- ❖ The conversion of quantities at the required place should be explained.



<https://www.youtube.com/watch?v=K7jOfrZjfHs>

https://www.youtube.com/watch?v=_E2iSlab5uc



Classroom Situation

- ❖ The teacher can ask the students to measure the length of a few benches in the classroom.
- ❖ Ask the students to measure the length and breadth of a book.
- ❖ Instruct them to measure the distance between two points drawn on the ground.
- ❖ While using ruler, different units for single fundamental quantity need to be explained.
- ❖ Ask the students to measure the length and breadth of doors and windows of their homes.
- ❖ Also tell them to measure the time required to travel from school to home.



(Video: Difference between Length and Height)

(Video: Measurement and Balance)

Physical quantities—derived quantities:

- ❖ The teacher should now explain that derived quantities are nothing but a combination of two or more fundamental quantities. Hence, it is a dependent quantity.
- ❖ The teacher can call the students to measure the length and breadth of the blackboard and teach them about area.
Area = length × breadth
- ❖ Volume is also a derived quantity where along with length and breadth, height is also required.

- ❖ The teacher should clarify on fundamental and derived quantities.
- ❖ The teacher can ask a student to immerse a stone tied to a rope in a glass half-filled with water.
- ❖ By this way the volume of liquid and the mass of solid can be calculated.
- ❖ The teacher can blow a balloon to show that the pressure can be compressed.
- ❖ At each point of time, units for every fundamental quantity need to be stressed.



Assessment

- ❖ Why is measurement required?
- ❖ What are fundamental quantities? Give examples.
- ❖ What are derived quantities? Give examples.
- ❖ How many components does measurement have?

Length



Transactional Strategy

Teaching-Learning method

The teacher can bring long and short threads to class. He/She can explain to the students how to measure it by introducing the concept of length.



Classroom Situation

- ❖ The teacher should question the students about the measurement of the thread. To know the exact value, ruler has to be used. The introduction of units has to be done. Make clear that various units of length are used depending on the distance.
- ❖ Before showing the procedure for measurement, the teacher should explain about zero error and parallax errors.

Zero error:

Zero error is an error in which an instrument gives a reading when the true reading at that time is zero.

Here, the teacher should clarify on positive and negative zero errors using vernier calipers.

When using vernier calipers, if the reading is away from the actual reading 0.00mm, it is positive zero error.

The reading should be corrected in vernier calipers, thereby, introducing zero correction.

Parallax error:

Parallax error is a difference in the apparent position of an object viewed along two different lines of sight.

It is measured by angle or semi angle of inclination between those two lines.

Causes of parallax error:

Parallax is a deceptive change of the position of an object which is observed while the position of the observer changes.

Steps to avoid parallax error:

1. Place your head or eyesight straight above the reading place.
2. Place the eyelevel correctly on the upper or lower curved surface for upper or lower meniscus of liquid.

After clarifying on zero and parallax errors, activities can be assigned to students.

Group activity

The teacher can ask the students to form four or five groups and give threads to each group. Ask them to measure using the ruler. Introduce parallax error.

Teach the students that longer distances are measured using metre as unit and it is a fundamental unit. Scales can have cm scale, mm scale or m scale. Point out that they need to convert wherever required.

Various activities such as the following can be assigned:

1. Measure the length of classroom benches and note down the units.
2. Measure the height of your friends using wall and scale.
3. Measure the length between two points on the doors.



Mass

Teaching-Learning method

The teacher can ask the students to carry a scale in one hand and a book in another. He/she should explain that mass is nothing but weight of an object. The more the mass, the more difficult to carry. This is due to gravitational pull.



Transactional Strategy

Classroom Situation

- ❖ The teacher can carry two scrapped coconut shells to class. He/She can make a beam balance and show the students.
- ❖ A few less weighing objects can be weighed by the students.
- ❖ The teacher should ask where beam balance can be seen in our daily lives.
- ❖ In labs, electronic weighing machines are used to give accurate measurement.
- ❖ Make clear that a minute change in lab measurement can produce varied results.
- ❖ Insist that the fundamental unit of mass is kg.

Activity

Prepare a chart with the correct units for weighing objects such as sugar, vegetables, milk, oil, water, and ghee.

Time

Teaching-Learning method

Circle time activity such as passing a ball from the first to the last student can be done. A stop clock can show the exact time taken for passing. The fundamental unit of time is seconds.



Transactional Strategy

Classroom Situation

- ❖ A simple ball tied to a rope can be used. The number of oscillations in a minute can be calculated.
- ❖ In the laboratory, simple pendulum experiment can be done.
- ❖ Time is the specific duration given to complete a task.



Temperature



Transactional Strategy

Teaching-Learning method

- ❖ The teacher can bring normal water and hot water along with a thermometer.
- ❖ It is necessary to teach about the readings in thermometer.
- ❖ After checking the temperature in cold and hot water, the variations should be taught.



Classroom Situation

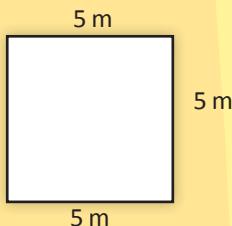
- ❖ Let the students form groups and record the temperature in different rooms such as laboratory, library, classroom, and so on.
- ❖ The teacher should also tell that meteorologists always measure and compare temperature to forecast weather reports. The temperature is measured in Fahrenheit scale in the United States and in Celsius scale in rest of the world.

Remedial measures

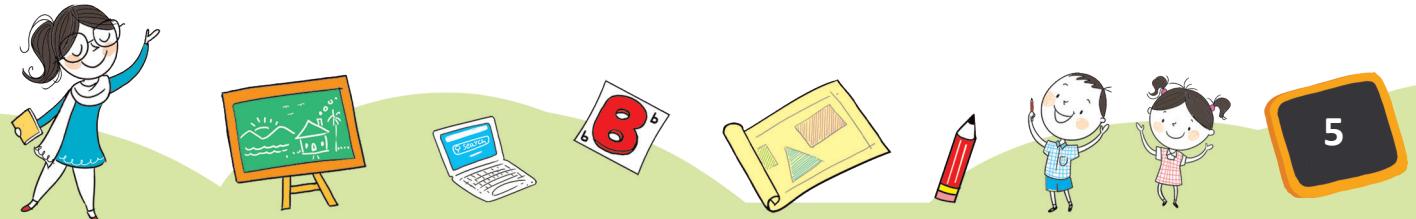
- ❖ Conversion tables for units and diagrams can be done as a chart work to be displayed in the classroom. It can be done as a group activity.
- ❖ Easy worksheets for students can be prepared.
- ❖ Real objects can be given to students to calculate the physical quantities.

Assessment

1. Measure the height of everyone in your family. Find who is the tallest of all.
2. Find the area of the following figures.



3. The height of a person is 1.65 metres. Express the value in cm and mm.



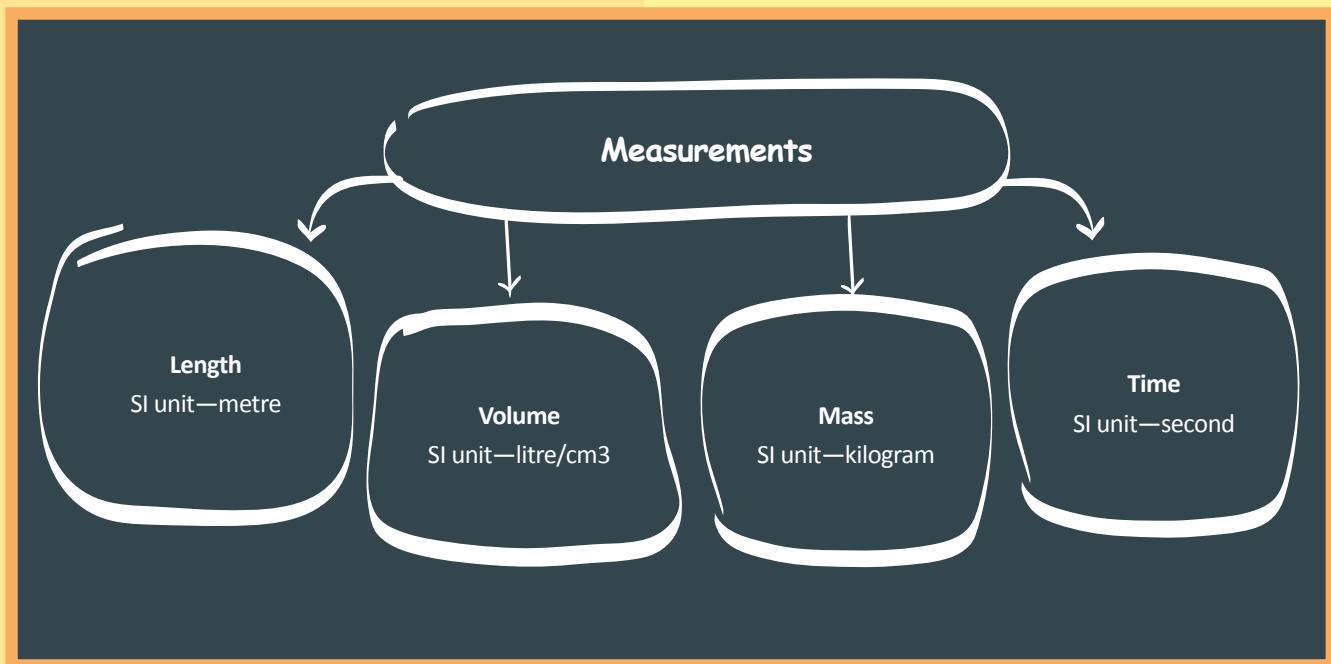
Teaching-Learning method

Classroom Situation

Self-Evaluation

1. The SI unit of length is
2. Is volume a fundamental or derived quantity?
3. What are the types of machines used to measure weight?
4. Time can be calculated in
5. Celcius and Fahrenheit are the units of
6. Why do helium balloons fly higher?
7. One metre is cm.
8. Define distance.
9. is an instrument that indicates the distance travelled by an automobile.
10. How can you find the length of a curved line?

Mind Mapping



2

Force and Motion



Teaching / Learning tools

pencils, chart paper, blackboard, chalk, and Internet

MON TUE WED THU FRI



Spotlight

- ◆ Acquiring knowledge about force, motion, and speed.
- ◆ Understanding how the concepts go hand in hand.
- ◆ Acquiring knowledge on robotic science.
- ◆ Learning to compute time and speed.



Learning Objectives

At the end of the lesson, students will be able to

- ◆ know the types of forces and motion and their results after application
- ◆ learn about animate and inanimate agencies of forces
- ◆ understand the relationship between force and motion
- ◆ know the places where these concepts are applied in daily life
- ◆ know the changes that force can result in
- ◆ learn the role of robots in the current scenario

Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ define force, motion and speed
- ◆ understand that forces are contact or non-contact
- ◆ explain the types of motion
- ◆ calculate average speed
- ◆ know that the force applied will increase or decrease in motion resulting in speed
- ◆ use and understand the unit of speed



Transactional Strategy

Teaching-Learning method

Warm up

The teacher should give information about the basic concepts.

- ◆ Motion is a change in position of an object over time.



Classroom Situation

- ◆ The teacher can start the concept of rest by calling a student to stand still in a place. The teacher can explain that standing idle without any movement is called rest.
- ◆ The contrary is motion wherein the teacher can move a book to explain it.



Teaching-Learning method

- ❖ Rest is the state of an object being stationary in relation to another object. The position is not changed with respect to its surroundings in time.
- ❖ Force is something that causes a change in the motion of an object. The most familiar unit is pound.
- ❖ Average speed is the distance travelled divided by the time elapsed.

$$\text{Average speed} = \frac{\text{Distance travelled}}{\text{Time taken}}$$

Assessment

The teacher can give a pop quiz on the definitions of motion, force and so on.

Rest and Motion



Transactional Strategy

Teaching-Learning method

- ❖ Simple exercises such as moving the hands up and down and sit and stand could be done.
- ❖ The teacher can bring a ball to the classroom to explain the concepts. The teacher should teach students about rest and then teach motion.
- ❖ Since measurement concepts are already known, the teacher should correlate motion in terms of velocity, acceleration, time, and speed. Shapes and boundaries could also be included.



Classroom Situation

- ❖ The term 'force' should be introduced now because it results in the speed of motion of the book.
- ❖ While explaining so, the agencies that are required for force can be introduced as animate and inanimate forces.

Classroom Situation

- ❖ The teacher can place a ball and say that the object is at rest.
- ❖ The students can be called one by one to show that kicking is motion as it makes the ball move.
- ❖ Also, the teacher should make it clear that the ball is kicked by a person and so here the motion is done by an animate agency.
- ❖ The teacher can tell about the movement of leaves on trees which move with respect to wind. Hence, inanimate agency is being introduced.
- ❖ The teacher can raise questions to students about implementing these concepts in our daily life.
- ❖ Even swimming, running, walking, jumping, and bouncing a ball are examples of motion.



Teaching-Learning method

- ❖ The teacher can give definition of each type of motion and also provide a relevant example.

Classroom Situation

- ❖ Periodic motion: A motion which repeats itself at regular intervals of time is called periodic motion. In the laboratory, simple pendulum experiment can be shown for periodic motion. Other examples can be motion of a boy in a swing or motion of a planet around the Sun.
- ❖ Non-periodic motion: A motion which repeats itself but not at regular intervals is called non-periodic motion. Example: running of a batsman between the wickets
- ❖ Linear motion: If a line is drawn with scale and pencil, it is linear motion.
- ❖ Rotatory motion: The formation of circle using compass is an example of rotatory motion.
- ❖ Uniform and non-uniform motion: If the object covers uniform distances at uniform intervals, then it is said to be in uniform motion. If it does not, then it is in non-uniform motion.
- ❖ Multiple motion: Bicycle is the best example that can be explained to students for multiple motion.

Assessment

The teacher can conduct a rapid fire round to question students regarding the types of motion. For example:

- ❖ beating of an heart
- ❖ athlete running on a track
- ❖ a car driving around a curve
- ❖ a bouncing ball
- ❖ a coconut falling from a tree

Force



Transactional Strategy

Teaching-Learning method

- ❖ The teacher can make use of the ball kicking activity similar to motion concept. The amount of force applied will result in displacement.



Classroom Situation

- ❖ A weighing machine can be brought to class to check the weight of a student.



Teaching-Learning method

- ❖ The teacher can also carry some nails or iron fillings with magnet to explain non-contact forces.

Classroom Situation

- ❖ When the student stands on the machine, due to the force exerted by the body, the needle moves. In this way, contact forces can be introduced.
- ❖ Pictures such as riding a bicycle, plucking a flower or weight lifting by a crane can be shown.
- ❖ The teacher can explain the results of forces as follows:
 - The force will change the state of a body (needle) from rest to motion.
 - The moving of a car using remote control can be shown to students. As a result of force, there can be change in speed or direction of the body.
 - Kneading of dough is the best example to show that force can result in change in the shape of a body.
- ❖ The teacher can list out the types of forces to students.
- ❖ Contact forces include:
 - frictional force
 - muscular force
 - elastic force
- ❖ Non-contact forces include:
 - gravitational force
 - magnetic force
 - electrostatic force

Assessment

The following questions can be given as a pencil and paper assessment.

1. Name the agencies required for force.
2. Give two examples for inanimate agency.
3. Mention the types of force with examples.
4. What are the results of force on an object?
5.surfaces cause more friction than smooth surfaces.



Average Speed



Transactional Strategy

Teaching-Learning method

The teacher can explain that average speed tells how fast an object moves.



Classroom situation

$$\text{Speed} = 50 \text{ m/s}$$

$$\text{Time} = 1 \text{ minute (60 seconds)}$$

$$\text{Distance} = ?$$

$$D = \text{speed} \times \text{time}$$

$$= 50 \times 60$$

$$= 300 \text{ mts}$$

The teacher can explain the concept with this simple calculation. He/She should also make it clear that speed gives only the distance and not displacement.

Assessment

1. What is the difference between speed and velocity?
2. If you travel 15 km in 1/2 hour, you would travel km in one hour, and your speed is km per hour.

Robots



Transactional Strategy

Teaching-Learning method

- ❖ The teacher can have a general discussion on robots.
- ❖ The teacher can divide the students into groups so that the advantages and disadvantages and latest improvements can be discussed.
- ❖ The meaning of 'robots' can be explained as automated machines which work faster and accurately.
- ❖ The teacher can also give information about nano robots.

Nano robotics is the science that deals with nano robots. They can be scaled down into very small spaces to perform a function.



Classroom situation

- ❖ After the group discussion, the links on the next page can be shown to the students.



Teaching-Learning method

Classroom Situation



<https://physics.info/motion> (HTML: The Physics Hypertextbook—Motion)
<https://sciencing.com/four-basic-types-motion-8131716.html> (HTML: Four Types of Motion)

Assessment

Home assignment: The students can be asked to do the following:

- ❖ Make a list of few examples that you observe in daily life for the types of motions in tabular form.
- ❖ Draw a flowchart showing types and examples of forces.
- ❖ Make a single model experiment to explain the concepts—rest, motion, and force.

Remedial Measures

- ❖ Concept-based classroom activities can be conducted.
- ❖ Simple lab experiments can be used to check the understanding of students.

Self-Evaluation

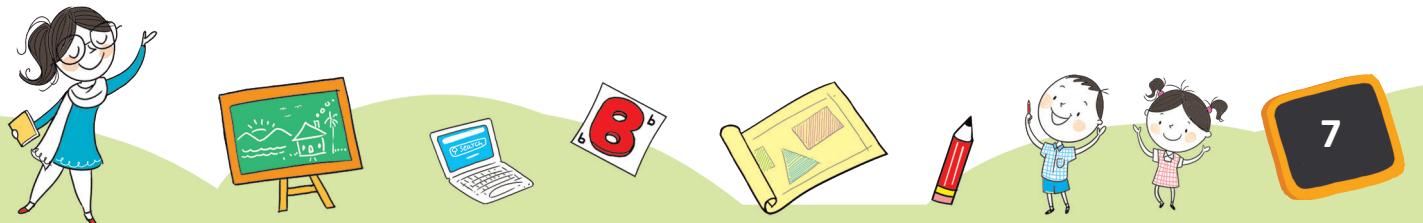
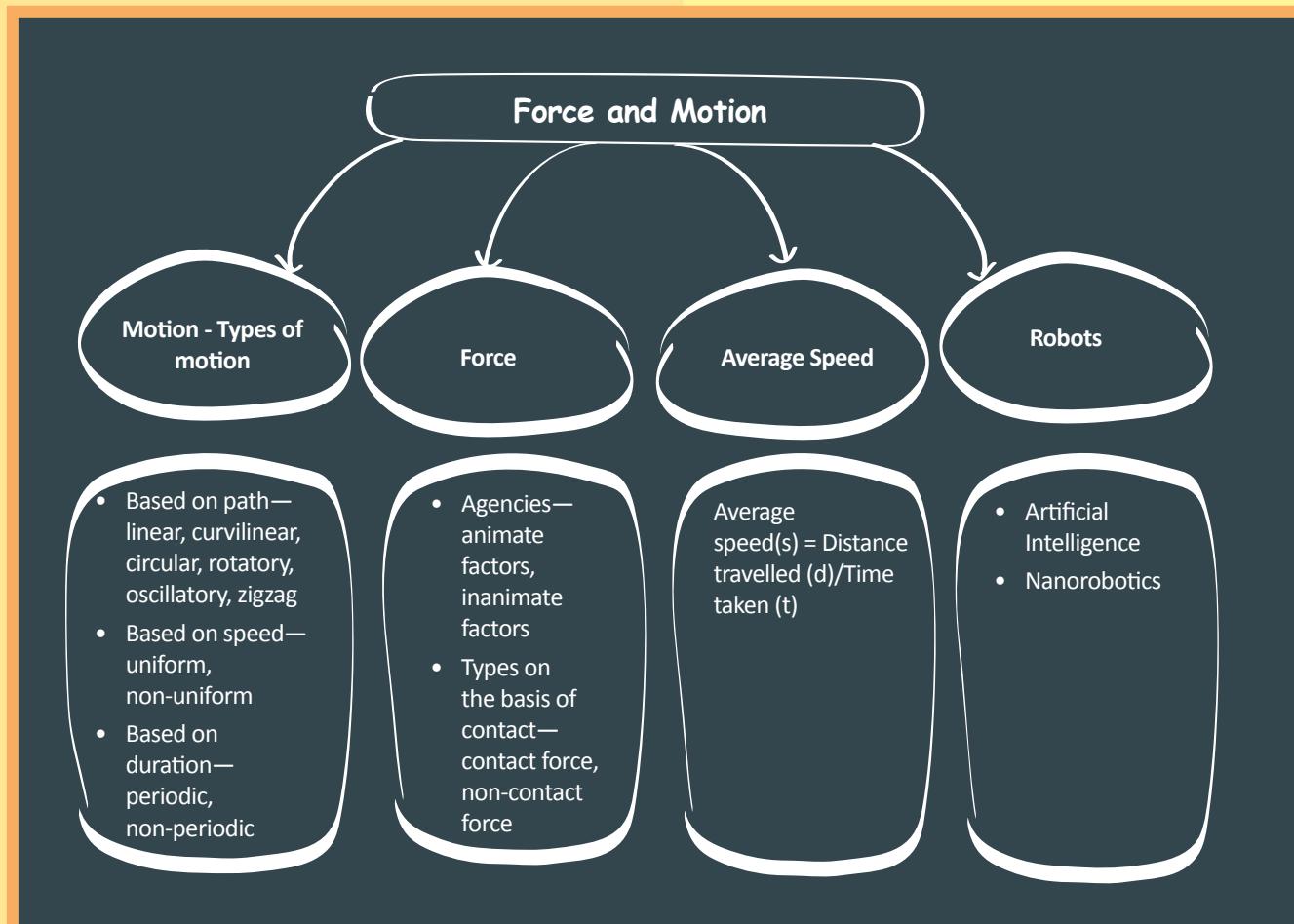
- ❖ I am able to identify whether the object is at rest or in motion.
- ❖ I can explain what kind of motion acts on an object.
- ❖ I understood the concept of forces and its types.
- ❖ I developed wide knowledge about robotic science.

Consolidation

- ❖ The concepts of force, motion and average speed along with types and examples are clearly explained.
- ❖ The calculations for the above concepts are derived using examples.



Mind Mapping





3

Matter Around Us



Teaching / Learning tools

blackboard, chalk, chart paper, pencil, bowl, rice, hot water, spoon, salt or sugar, Internet

MON	TUE	WED	THU	FRI



Spotlight

- ◆ Understanding that everything is made up of matter.
- ◆ Knowing that matter is found in three states— solid, liquid, or gas.
- ◆ Learning that atoms form the basis of all things.
- ◆ Learning the methods used for separation of mixtures.



Learning Objectives

At the end of the lesson, students will be able to

- ◆ understand the physical nature and characteristics of matter
- ◆ classify substances into solid, liquid, and gas based on certain properties
- ◆ identify changes in states of matter
- ◆ differentiate between pure substances and mixtures
- ◆ identify the need for separation of mixtures
- ◆ acquire awareness about adulterants and the necessity to overcome them

Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ define matter and its properties
- ◆ sort the objects based on its properties
- ◆ understand the basic arrangement of atoms, molecules, elements, and compounds
- ◆ easily separate the mixtures by any one of the given methods
- ◆ create an awareness on food adulteration



Introduction



Transactional Strategy

Teaching-Learning method

- ❖ The teacher can carry a few objects such as box, water and air pillow and ask students to tell what they are. Now, the introduction of solid, liquid, and gas could be done.



Classroom Situation

- ❖ Explain that solid, liquid, and gas occur based on molecules present in them. Tell them that molecules are tightly packed in solids, irregularly packed in liquids, and move freely in gases.
- ❖ Tell them that atoms are indivisible. The teacher can explain this by breaking a chalk piece to its least form.



Teaching-Learning method

- Explain that solid, liquid and gas are called matter. So, matter can be defined as anything that has mass and takes up space.

Classroom Situation

- After explaining matter, separation of mixtures could be taught.
- The teacher can bring a handful of rice having stones and the simple method of separation could be done.
- While separating stones, the term 'adulterants' has to be introduced.



<http://www.makemegenius.com> (Videos: Science Videos)

Solid, Liquid, and Gas



Transactional Strategy

Teaching-Learning method

- The teacher can bring a bowl of hot water to explain that bowl is a solid, water is a liquid, and the vapour that comes out is gas.
- At this point, the teacher should explain that matter is made up of atoms which are indivisible and cannot be separated using the normal eye.



Classroom Situation

- The teacher can ask students to make a list of solid, liquid, and gas that are seen at home.
- The teacher can add a spoonful of salt or sugar to water. Here, he/she needs to explain that since the molecules have space between them, the added salt or sugar dissolves in it.
- Mention that molecules attract each other.
- The characteristics of molecules are thus explained.
- The teacher can take a piece of stone and place it in a container. Pour water in another container. After observing, the teacher needs to explain that if there is no change in the shape or volume of a substance, then it is solid. If there is any change in shape or volume, then it is liquid.
- This means that the molecules are tightly packed in solid and randomly packed in liquid.
- A balloon can be filled with air to fly but this cannot be done with a solid or liquid. This indicates that gas can be compressed as the particles move freely.



Teaching-Learning method

- ❖ At this point, the teacher should specify that gas does not respond to gravity like liquids.

Classroom Situation

- ❖ A drop of ink is dripped through a filter into a glass of pure water. As time passes, the ink spreads into the water. The teacher should explain that the particles of ink are diffusing (spreading) into the available space of liquid.
- ❖ The teacher can ask students to categorize the following as diffusible or non-diffusible.
 - milk and water
 - oil and water
 - sugar in water
 - smell of incense sticks
 - ice in juice
- ❖ The teacher can carry a syringe to show that the gas present is compressed to inject the medicine into the body.
- ❖ Also, the LPG we use at homes, has gas compressed in it.

Assessment

Write any two properties for each of the following:

- ❖ solid
- ❖ liquid
- ❖ gas

Pure Substances and Mixtures



Transactional Strategy

Teaching-Learning method

Explain to the students that mixtures in chemical terms are a combination of molecules or compounds. Mixtures are impure substances which contain many compounds or elements.

Classroom Situation



- ❖ The teacher can carry a few vegetables such as carrots, cabbages, beans and some pepper. She can prepare a vegetable salad to demonstrate that the salad is nothing but a mixture of vegetables.



Teaching-Learning method

Class-room Situation

- ❖ In the example given below, proportion of ingredients will vary.
- ❖ The teacher can bring a lemon, water, and sugar and ask students to prepare lemon juice. Here, the mixture is the combination of all three ingredients in different proportions.
- ❖ A mixture can be physical combination of two elements. For example, gold and copper.

Assessment

Is air a mixture? If yes, what does it contain?

Separation of Mixtures



Transactional Strategy

Teaching-Learning method

- ❖ Explain that not all mixtures need to be separated. But when a substance has to be obtained in a pure form, it has to be separated. For example, removal of metal from its ore is necessary to obtain metal in its purest form.
- ❖ List out the steps involved for obtaining pure mixture—harmful components are removed, useful components are separated, and the substance can be obtained in highly pure form.



Class-room Situation

- The following methods of separation can be taught to students in class.
- ❖ Filtering: It is the separation of liquid and solid.
Example: filtering of tea leaves through strainer in order to get the tea
 - ❖ Sieving: Removal of solids from any form. This is done to remove impurities such as stones, gravel, and so on. Example: separation of sand from gravel
 - ❖ Churning: In this process, new substances are obtained. Example: Ghee and buttermilk are obtained from curd.
 - ❖ Threshing: Farmers utilize this method by beating the stalks hard to obtain grains.
 - ❖ Winnowing: It is the process of removal of husk of certain grains such as rice or wheat. It is done by dropping the mixture slowly in the presence of wind.



Teaching-Learning method

Classroom Situation

- ❖ Handpicking: It is an easy physical method where stones and other impurities are separated.
- ❖ Magnetic Separation: Iron fillings or nails are attracted by magnet and hence they can be separated.
- ❖ Sedimentation and decantation: By washing a mixture of rice and water, impurities float and they can be removed slowly by pouring the water out. This is called decantation. The heavier rice grains sink to the bottom. This is called sedimentation.
- ❖ Filtration: Chemically, filter papers are used to remove finer impurities. This could be done in class or lab.

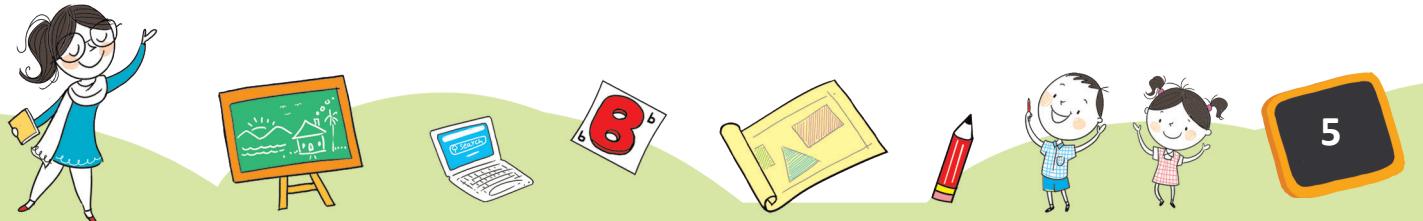
Classroom activity such as separation of mud from water in two beakers can be used to explain the decantation process.

Note: All the above separation methods can be done practically in class among students to have a clear idea about them.

Assessment

Prepare a flow chart by showing the methods of separation of mixtures with examples. List out the ingredients present in the mixtures given below along with the methods of separation.

- ❖ fruit salad
- ❖ sand and water
- ❖ milk
- ❖ rice from grains
- ❖ filter coffee
- ❖ impurities from rice



Food Adulteration



Transactional Strategy

Teaching-Learning method

- ❖ Explain that adulteration is when a mixture or food item contains impurities.
- ❖ Tell them that these are substances which remain as impurities in a mixture.
- ❖ Make them understand that this may also occur due to carelessness or lack of proper handling.



Classroom Situation

- ❖ The teacher can mix coffee powder and brick powder to show what adulterants are and explain how the product is adulterated.
- ❖ Also, the teacher should mention that the adulterant will not possess any properties similar to the original one.
- ❖ Give them the example of how used tea leaves are again used to prepare tea whereby the result is not good.
- ❖ Talk to them about the steps to overcome adulteration such as buying branded products and checking the expiry date, using any one of the separation methods, avoiding a few items completely in order to keep up good health.
(Example: ajinomoto).

Assessment

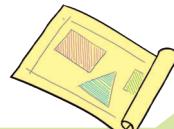
- ❖ Prepare a chart depicting the properties, particles and effects of solid, liquid and gas.
- ❖ List out the solid, liquid and gaseous substances you can see at home.
- ❖ Do any one of the separation methods at home taking help from your parents and note down the steps.
- ❖ Make a list of adulterants in food.

Remedial Measures

- ❖ Pictures and videos related to the topic can be shown.
- ❖ Quiz competitions raising simple questions can also be conducted.

Self-Evaluation

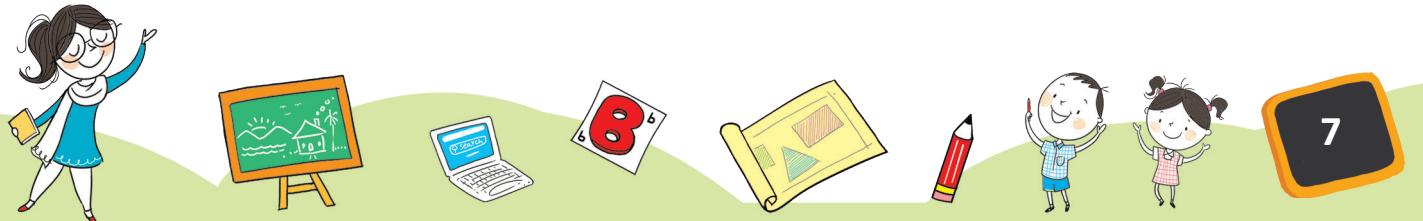
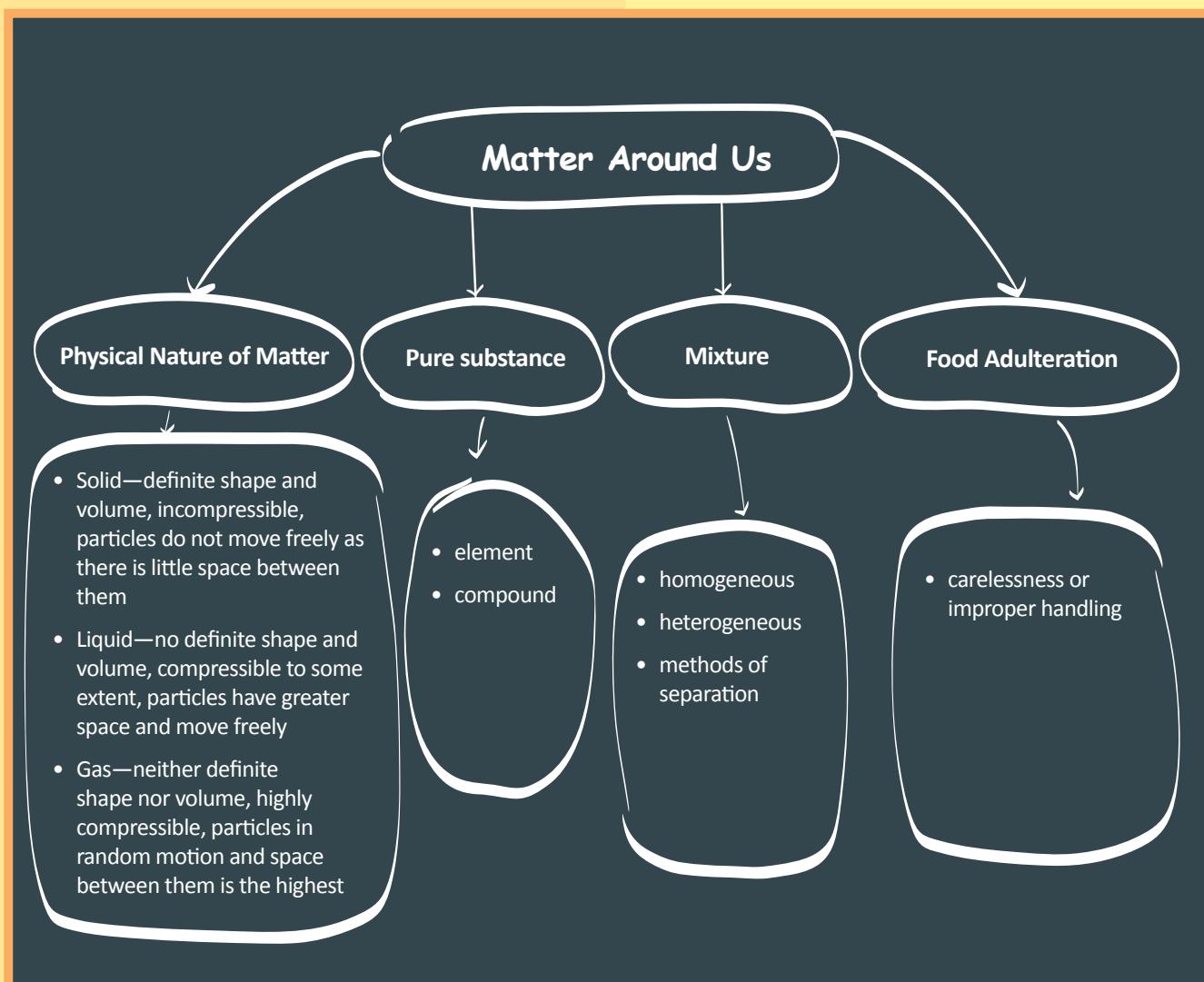
- ❖ I am able to understand and differentiate solid, liquid, and gas based on their properties.
- ❖ I am clear about what is diffusion and liquefaction of gases.
- ❖ I know about simple methods of separation.
- ❖ I am aware about adulterants and adulteration.



Consolidation

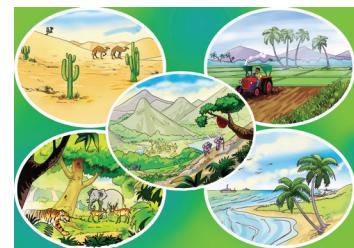
- ❖ The differentiation between solid, liquid and gas is clearly explained.
- ❖ Pure substances and mixtures are dealt with.
- ❖ The separation methods are practically done easily.
- ❖ Knowledge about adulteration is also made clear.

Mind Mapping



4

The Living World of Plants



Teaching / Learning tools

jars, dyes, flowers, cabbage leaves, water, pencils, chart paper, chalks, blackboard, Internet

MON TUE WED THU FRI



Spotlight

- ◆ Gain knowledge on different varieties of plants and their parts.
- ◆ Understand the different functions of plants.
- ◆ Learn about the different types of habitats and how the plants exhibit modifications and adaptations based on the habitat.



Learning Objectives

At the end of the lesson, students will be able to

- ◆ know the plant varieties
- ◆ learn the different parts of the plant
- ◆ learn various functions of the plants
- ◆ know the different varieties of leaves
- ◆ learn the different types of habitats



Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ identify different parts of a plant
- ◆ understand the root and shoot system and their functions
- ◆ identify the plants with tap roots and fibrous roots
- ◆ classify different parts of a leaf
- ◆ know about different types of habitats
- ◆ understand plant adaptations and modifications based on habitats

Introduction



Transactional Strategy

Teaching-Learning method

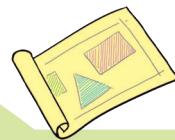
Warm up

- ◆ The teacher can ask the students to bring one vegetable each to the classroom and ask them to classify the vegetables based on their parts such as stem, leaf, root, and so on. This will help the students to know the different parts of the plants.
- ◆ The teacher can ask the students to paste a leaf on a paper and mark the parts of the leaf.



Classroom Situation

- ◆ Practical explanation of the experiment will help the students learn the concepts better.
- ◆ The teacher should describe the uses of the different parts of a plant.
- ◆ With these experiments as base, the different varieties of plants, their parts, and their habitats can be learnt.



Teaching-Learning method

- ❖ To understand the conduction of water by the plant, the teacher can perform the jar experiment given below, in the classroom.
 - Take 4 cups of water and add different coloured dyes to each jar. Place flowers with long stems or cabbage leaves in each jar and leave them overnight. The next day, it can be observed that the colour of the flowers/cabbage leaves have turned into the colour of the dye. This not only shows that plants absorb water but also shows the upward movement of water to the other parts of the plant.
- ❖ The teacher can take the students to the school garden and make them see different types of plants and trees that grow on land (terrestrial habitats).
- ❖ The students can be taken to water bodies such as lakes, rivers, ponds, and wetlands and the aquatic plants can be shown (aquatic habitats).

Classroom Situation



Main Parts of the Plants—Root System



Transactional Strategy

Teaching-Learning method

- ❖ Tell your students that roots are important for holding the plant in the soil. They take in water and minerals to help the plant stay alive.
- ❖ Explain the different types of root systems such as tap root system and fibrous root system.
- ❖ Take the students to a vegetable garden. Show the gardening tools to the students and tell them how to dig up and expose some roots (both non-edible roots and edible roots such as carrot, beetroot, lettuce and celery).



Classroom Situation

- ❖ The teacher can conduct matching game in the class. The students should match the name of a plant with the edible roots' pictures.
- ❖ For hands-on experience, give seeds to the students and ask them to grow the plants on their own.
- ❖ Ask them questions such as: *What is the function of roots? How do roots help to keep a plant alive?*



Teaching-Learning method

Classroom Situation

Main Parts of the Plants—Shoot System



Transactional Strategy

Teaching-Learning method

Classroom Situation

- ❖ Explain the function of each part one by one.
- ❖ Explain that the stem is the part that carries water to the other parts of the plant from the roots. Use the above-mentioned jar experiment for more understanding.
- ❖ Clarify that the flower supports the plant to reproduce and produce seeds that will grow into new plants.



The teacher should draw a picture of a plant on the board. Ensure that roots, stem, a flower, and leaves are included.

Modeling and practising

(to be done under adult supervision)

- ❖ Ask the students to create their own plants using coffee cups, green construction papers, fake flowers, scissors, glue, and white paper.
- ❖ This plant model should have a stem, roots, leaves, and flowers. Ask the students to label the parts using sticky notes.
- ❖ Request students to show their plants to the class and explain the functions of the different parts.

<https://www.youtube.com/watch?v=X6TLFZUC9gI>

(Video: Parts of a Plant)



Structure of a Leaf



Transactional Strategy

Teaching-Learning method

Classroom Situation

Explain to the students that leaves breathe in air and take in the light that a plant requires to live.



- ❖ Draw a leaf on the board and question the students on your drawing. Ask them to identify the different parts of a leaf.

- ❖ Explain that plants have leaves and their shapes and sizes differ from plant to plant. Give them examples. Tell them magnolia trees have obovate leaves, maple trees have star-shaped leaves, and birch trees have deltoid leaves.
- ❖ Ask the students to draw a leaf, label its parts, and identify its functions.



Teaching-Learning method

Classroom Situation



Types of Habitats

Transactional Strategy

Teaching-Learning method

A habitat is an environment for plants to grow. The teacher can take the students to different habitats and show the plants there.



Classroom Situation

- ❖ Matching activities can be given by the teachers to the students. They can match the different habitats with the plant pictures.
- ❖ Encourage the students to explain the features of a habitat and list out the plants that are well-suited under each habitat.

Activity

- ❖ Distribute seeds to the students and ask them to grow the plants at home.
- ❖ Suggest the students to help their mother at home to cook plant roots such as carrots, radishes, and potatoes. They can bring the cooked food and share with their friends.

Assessment

1. Fill in the blanks.

- a. The stalk of the leaf is called
- b. The aerial part of the plant body is called
- c. desert is also called Great Indian desert.
- d. Some plants have weak stem. They are called
- e. is one of the fastest growing plants during active growth phase.

2. Match the following.

Column A

- a. lakes and rivers
- b. twining climbing organ
- c. clitoria
- d. stomata
- e. sea grasses

Column B

- (1) tendril climber
- (2) helps in respiration
- (3) marine water habitat
- (4) fresh water habitat
- (5) twiners



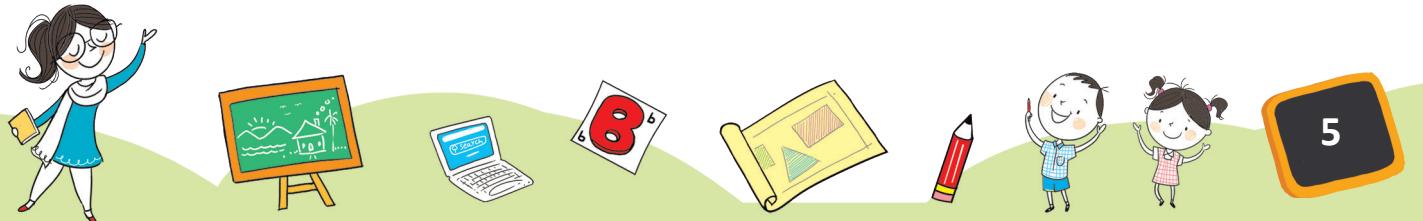
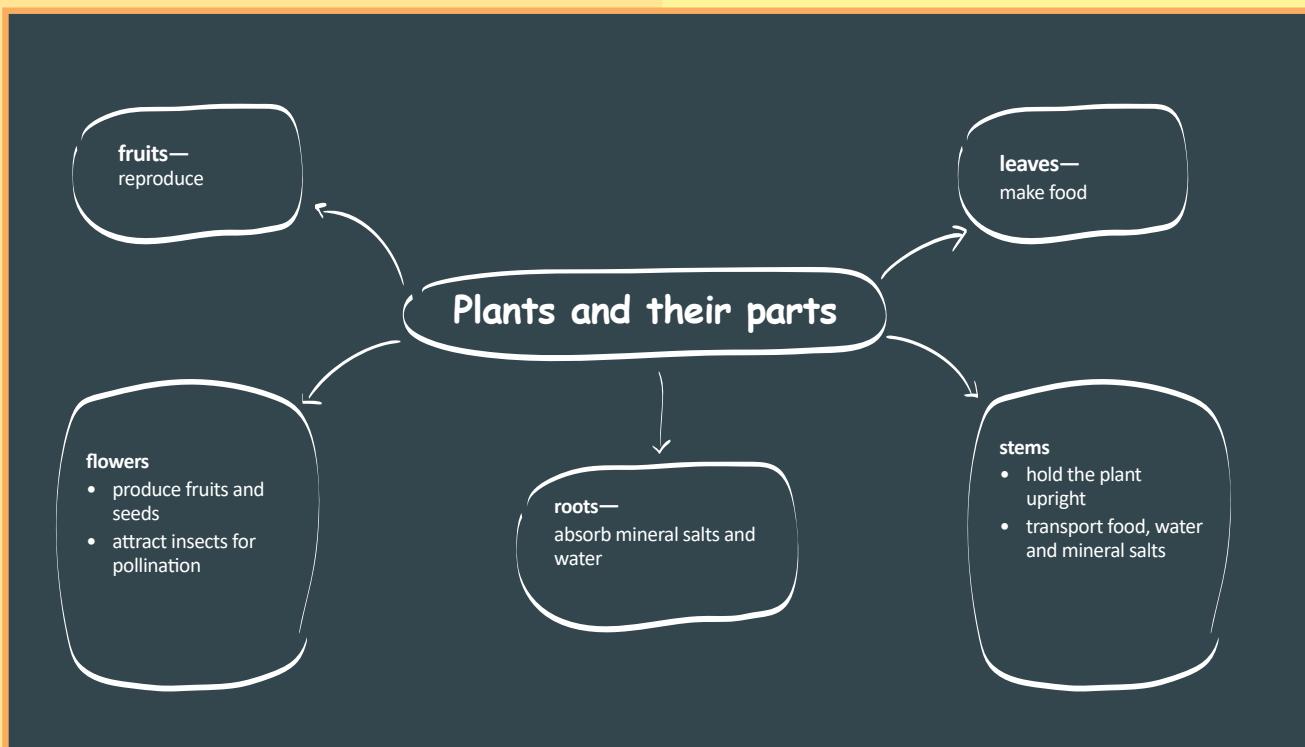
3. Answer the following questions.

- a. Which part of the leaf connects it to the branch?
- b. Some plants float on water. What are they called?
- c. Give some examples for fresh water habitat.
- d. What are the three types of forests?
- e. What do the roots do?
- f. How do the roots help to keep a plant alive?
- g. What purpose do leaves serve?
- h. What does the stem do?
- i. What do flowers do?
- j. What does chlorophyll do?

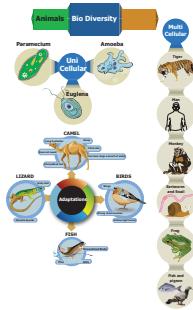
Self-Evaluation

The students can draw a plant and label its parts. This will give them more clarity on the parts of a plant.

Mind Mapping



5 Living World of Animals



Teaching / Learning tools

pencils, chart paper, blackboard, chalk, and Internet

MON	TUE	WED	THU	FRI



Spotlight

- ◆ Acquiring knowledge about the biodiversity and habitat of the living creatures of the world.
- ◆ Understanding the concept of the unicellular and multicellular organisms among animals in detail.
- ◆ Knowing various adaptation of different kinds of animals.



Learning Objectives

At the end of the lesson, students will be able to

- ◆ learn and understand the term 'habitat' and discover forests, deserts, wetlands and grasslands which are unique
- ◆ learn the difference between unicellular and multicellular organisms
- ◆ identify the animals that live in four different environments and how they adapt themselves to it



Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ understand and classify animals according to the habitat
- ◆ differentiate between unicellular and multicellular organisms
- ◆ know in detail about the adaptation of different kinds of animals
- ◆ apply the various concepts and evaluate the value of living organisms and gain more knowledge about the subject



Transactional Strategy

Teaching-Learning method

Biodiversity and habitat

- ❖ Talk to students about different natural environments and ask simple questions such as the following:
 - What is a forest and how does it look like?
 - How is a forest different from a desert?



Classroom Situation

- ❖ Once students have a solid understanding of the different habitats, tell them to draw a picture of the animals that live in their surroundings. Talk about the different kinds of things you would expect to see in the picture. Write different kinds of habitats on the board



Teaching-Learning method

- What are the different kinds of habitats that you know?
- ❖ Explain the term 'habitat' and talk about the different kinds of animals that live in different habitats.
- ❖ Make them understand the basic characteristics of these environments and ask them to identify some animals which live in each of these habitats.

Classroom Situation

for each student to choose one among the given topics.

- ❖ Once they have drawn, ask them to share about the habitat they have worked on, with the rest of the class.
- ❖ Ask them to explain what kind of animals appear in their drawings and habitats and the reason behind it.



<https://www.youtube.com/watch?v=Xj1ASC-TlsI> (Video: Animal Habitats)

Assessment

Collect pictures of various ecosystems such as lake, pond, forest, desert, mountain, and polar region and prepare a chart of animals in these places.

Unicellular and Multicellular Organisms



Transactional Strategy

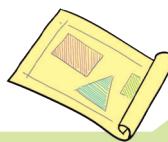
Teaching-Learning method

- ❖ Make students understand that living things are made of small units called cells. All the functions in the body of a living things are in process due to these microscopic cells.
- ❖ Explain to them in detail that some organisms are made up of single cell and are known as unicellular organisms, for example, amoeba and euglena. They need specific conditions to survive in the world and they cannot be seen with the naked eyes.
- ❖ Likewise, some organisms are made up of many cells and are known as multicellular organisms, for example, fish, frog, lizard, bird, and man.

Classroom Situation



Have students brainstorm ideas on how environment plays a crucial role in the survival of unicellular and multicellular organisms. Once students identify the factors such as light, temperature, and food sources, they are ready to design and experiment how these factors influence their survival.



Teaching-Learning method

Assessment

- ❖ Draw and label the parts of amoeba (unicellular).
- ❖ Draw and label the parts of fish (multicellular).
- ❖ Make a tabular column and write the differences between unicellular and multicellular organisms.

Group activity

Divide the class into two groups. Give one group yellow cards labelled unicellular organism and the other group pink cards labelled multicellular organism. Then, from each group, a student will have to come out and give examples and talk about its characteristics.

Classroom Situation

Adaptation in Animals



Transactional Strategy

Teaching-Learning method

Explain to students that animals develop special characteristic features to help them survive in their environment.

Give examples such as the following:

- ❖ Fish have special organs called gills to breathe and fins for swimming under water.
- ❖ Birds have a streamlined body and strong chest muscles covered with feathers which help them to withstand the pressure of air while flapping their wings to fly. They have binocular vision as well.
- ❖ Camels live in deserts and have long legs to travel and to keep away from the hot sand. Camels can drink lot of water when it is available and store it in their bodies. They are known as the ship of the desert.
- ❖ Animals spending winter in dormant conditions is called hibernation.
- ❖ Animals moving from one location to another location when the season changes is said to be migration.

Classroom Situation



Students can clarify in case of any doubts. After the explanation, students can read the contents in the textbook. This will help them to understand the topic better.



Teaching-Learning method

Classroom Situation



Assessment

Ask students to write down the adaptive features of animals and different habitats in a tabular column.

Self-Evaluation

- ❖ I am able to understand the different kinds of habitats of the living animals in my surroundings.
- ❖ I can understand and differentiate between the characteristics of unicellular and multicellular organisms.
- ❖ I can classify the different adaptation in animals.

Assessment

1. Write true or false; if false give the correct answer.

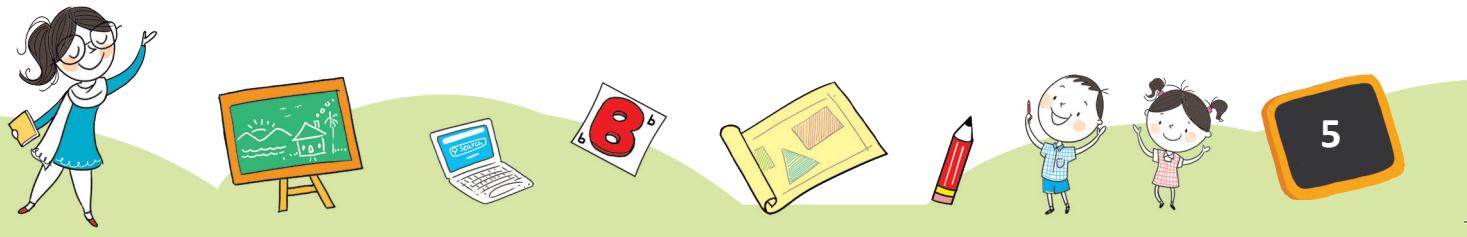
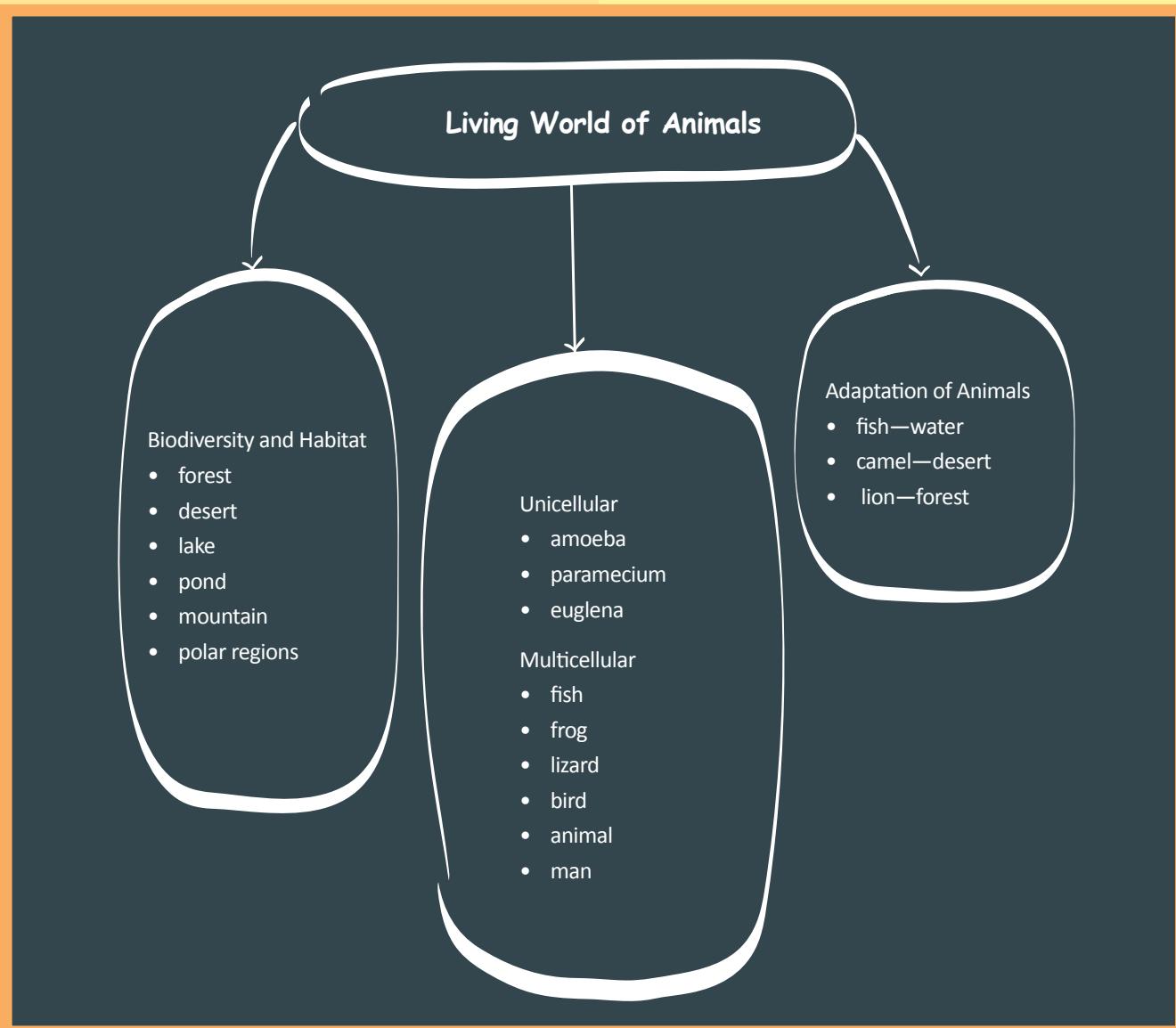
- a. Habitat is a living or dwelling place of organisms.
- b. The geographical features and environmental conditions on earth remain the same in all the places.
- c. Amoeba is a unicellular organism and moves with pseudopodia.
- d. Birds can see only one object at a time.
- e. Paramecium is a multicellular organism.

2. Answer the following questions.

- a. Differentiate between unicellular and multicellular organisms.
- b. Write the adaptive features of the polar bear and the penguin.
- c. Mention the feature that helps a bird to fly in the air.
- d. What are the different types of invertebrates?



Mind Mapping



6

Health and Hygiene



Teaching / Learning tools

pencils, chart paper, blackboard, chalk, and Internet

MON	TUE	WED	THU	FRI



Spotlight

- ◆ Understanding the importance of health and hygiene.
- ◆ Learning to maintain a balanced diet in our day-to-day life.
- ◆ Learning to incorporate good and hygienic habits in our life.
- ◆ Understanding the values of nutrients in our body which help us to grow and stay fit.
- ◆ Acquiring knowledge on vitamins, the types and functions and deficiency diseases that occur due to lack of vitamins in our body.
- ◆ Learning about different kinds of microbes and diseases caused by them.
- ◆ Learning to protect yourself and your body from the above diseases by keeping yourself healthy and hygienic.



Learning Objectives

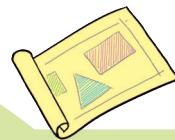
At the end of the lesson, students will be able to

- ◆ classify the different components of food
- ◆ evaluate the importance of nutrients present in our food
- ◆ enrich their knowledge on balanced diet
- ◆ list out the deficiency diseases
- ◆ describe personal hygiene
- ◆ differentiate the diseases caused by bacteria and virus

Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ differentiate the components of food and how much of these they have to consume in day-to-day life for a balanced diet to keep them healthy
- ◆ know about the importance of nutrients and how these help them to grow, give energy, and repair their body to keep them fit
- ◆ gain knowledge about the importance of vitamins and the deficiency caused by lack or excess of vitamins
- ◆ understand the importance of health and hygiene
- ◆ know about the bacteria and virus and the ways in which these are being transmitted into our body





Transactional Strategy

Teaching-Learning method

Warm up and introduction

- ❖ Ask students simple questions about health and then explain about healthcare.
 - What is WHO? (World Health Organization)
- ❖ Ask simple questions on hygiene and then explain in detail.
 - Why do you brush twice daily?
 - Why should we wash our hands?
- ❖ Teach them the importance of keeping the surroundings in and around them clean.



Classroom Situation

You can ask students to write five ways of keeping the classroom clean.

Components of Food



Transactional Strategy

Teaching-Learning method

- ❖ Lead students through a small story about Deepa's family and how they had been preparing their monthly provision list and discuss the following questions.
 - Why do we consume less oil?
 - Why do we buy so much of pulses?
- ❖ Ask students what the different components of food are.
- ❖ Explain the different components of food. For example, carbohydrates, fats, proteins, vitamins, minerals and water.



Classroom Situation

- ❖ Ask students to prepare a list based on the story.
- ❖ Show them pictures of food items and ask them to classify these. For example:
 - Food which I would like to eat
 - Food which I do not like
 - Food which I have never seen before



https://www.youtube.com/watch?v=Kb_6I21Ftdk

(Video: Components of Food)



Carbohydrates



Transactional Strategy

Teaching-Learning method

- ❖ Start by asking simple questions such as
 - What are carbohydrates?
- ❖ Explain that carbohydrates give energy through food.
- ❖ Tell students that carbohydrates are obtained in the form of sugar starch and dietary fibers.

Classroom Situation



- ❖ Ask students to list down carbohydrates and its sources.
- ❖ Ask students to do activity 3.

Assessment

Name any four sources of carbohydrates.

Fat



Transactional Strategy

Teaching-Learning method

- ❖ Explain that fat is also an energy-giving food but gives more energy than carbohydrates.
- ❖ Ask them if they like milk, ghee, butter, paneer, nuts, meat, fish and egg yolk and tell them that these are sources of fat. Tell them that they insulate our body and protect our cells.



Classroom Situation



- ❖ Ask students to draw pictures of some food items containing fat.
- ❖ Ask students to do activity 4.

Assessment

How does fat help our body?



Protein



Transactional Strategy

Teaching-Learning method

- ❖ Teach students about the importance of protein and how it helps our growth.
- ❖ Tell them that it is a body-building food. It also regulates various body functions such as digestion.
- ❖ Some of the sources of proteins are pulses, egg, fish, milk, chicken, and so on.



Classroom Situation

- ❖ Ask students to make flash cards and charts about proteins and their sources.
- ❖ Ask students to do activity 5.

Vitamins



Transactional Strategy

Teaching-Learning method

- ❖ Teach the functions of vitamins.
- ❖ Tell them that vitamins help in carrying out the various biochemical reactions in our body and are called protective food.
- ❖ Gooseberry contains 20 times more vitamin C than orange.



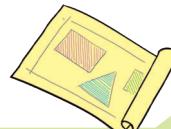
Classroom Situation

- ❖ Ask students to form groups, collect pictures and make a chart on types of vitamins, food items in which vitamins are found abundantly, and deficiency diseases.

Assessment

Name the six kinds of vitamins. Mention whether each kind of vitamin is water soluble or fat soluble.

4



Minerals



Transactional Strategy

Teaching-Learning method

- ❖ Explain how minerals also help in growth and regulation of normal body functions.
- ❖ Tell students that minerals are also called protective food.
- ❖ Tell them that minerals are found in food sources such as spinach, fruits, pulses, and so on.



Classroom situation

- ❖ Ask students to make a chart on minerals and their functions.
- ❖ Ask students to make a list of minerals found in moringa leaves.

Water



Transactional Strategy

Teaching-Learning method

- ❖ Ask simple questions such as the following:
 - Is there water in our body?
 - How much of our body is covered with water?
 - How important is water to us?
- ❖ Explain that our body requires adequate supply of water to maintain good health.
- ❖ Explain that every human being should consume minimum eight tumblers (2 litres) of water in a day.



Classroom situation

Ask students to make a note of how many glasses of water they drink every day.



Health



Transactional Strategy

Teaching-Learning method

- ❖ Ask a simple question such as the one given below:
 - Would you like to be healthy or unhealthy?
- ❖ Explain the importance of health.
- ❖ Explain that health is a state of complete physical, mental and social well-being and not merely absence of diseases.
- ❖ Teach them that having healthy food keeps us physically and mentally fit.
- ❖ Also tell that unhealthy food leads to obesity and illness and prevents one from enjoying one's life. Thus one has to be very careful in choosing one's food.



Classroom Situation

Ask students if they know the proverb 'Health is Wealth' and what it means. Write their responses on the board.

Assessment

Ask students to discuss among themselves and enact a role play on the outcomes of having healthy food and junk food.

Balanced Diet



Transactional Strategy

Teaching-Learning method

- ❖ Ask them if they know what a balanced diet is.
- ❖ Explain to students that balanced diet should contain adequate amount of various nutrients necessary for our growth and good health. It should also give us enough energy. It helps our body to fight against diseases.



Classroom Situation

- ❖ Ask students to form groups and make a food pyramid.
- ❖ Ask students to prepare diet charts on balanced diet for a 12-year-old child.



Malnutrition



Transactional Strategy

Teaching-Learning method

- ❖ Make students understand the consequences they face when their diet is not balanced.
- ❖ Show some pictures of children who have malnutrition and ask them relevant questions.
 - Do these children look normal?
 - Guess the reason for their abnormality.
- ❖ Explain that these conditions are due to malnutrition.
 - When all the nutrients required for our body are not obtained in the correct proportions, it leads to malnutrition.
 - A person who does not have a balanced diet will be affected by malnutrition which leads to deficiency diseases.



Classroom Situation

- ❖ Make a chart about protein and mineral deficiency diseases.
- ❖ Let them discuss and give an oral presentation.

Physical Exercise and Rest



Transactional Strategy

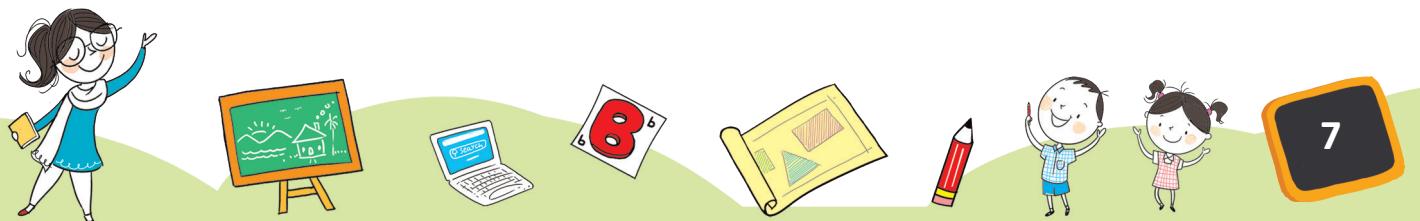
Teaching-Learning method

- ❖ Teach students about the importance of exercise in their day-to-day life to keep themselves fit. Exercise also helps in the growth and development of oneself. It strengthens muscles and the cardiovascular system. Sufficient rest is also required to maintain physical and mental health. It is as important as the nutrients required for our body.



Classroom Situation

Ask students if they play, exercise or do yoga. Also ask them if they get sufficient rest every day. Each student can be made to say one or two lines.



Assessment

- Ask students to draw stick pictures on a chart on different kinds of physical activity.
- Ask students to go to bed early and rise early too. They can practise this for a week or two and share their experiences in the class.

Personal Cleanliness



Transactional Strategy

Teaching-Learning method

Ask students if they know what hygiene is. Tell them that brushing teeth twice a day, taking a bath every day, washing hands before and after eating, trimming nails, and so on are personal hygiene. Tell them that cleanliness also includes keeping home and classroom clean.



Classroom Situation

Group Activity

- Divide the class into groups of three or four.
- Each group can discuss and prepare charts on health and hygiene. They can display it in the class.

Introduction to Microbes



Transactional Strategy

Teaching-Learning method

- Ask questions to know whether students are familiar about microbes.
 - What is a microbe? (bacteria and virus)
 - What are the diseases caused due to it?
- Make students understand that when they neglect personal cleanliness (hygiene), they fall sick.



Classroom Situation

- Take students to the laboratory and show them microbes such as bacteria and virus through the microscope.
- Ask students to list out in a tabular column about bacterial diseases and their mode of transmission.



Teaching-Learning method

Classroom Situation

- Tell students that there are some organisms which cannot be seen with our naked eyes. They are called microbes. They are divided into four major groups.
- Also, tell them that they can be seen only under the microscope.

Assessment

Name the four major groups of microbes.

Bacteria



Transactional Strategy

Teaching-Learning method

Classroom Situation

- Read and explain to students what bacteria is. Talk to them on the diseases caused by bacteria.



- Ask students to discuss among their friends and find out the diseases caused by bacteria and the vaccinations for it.

Assessment

Name any two bacterial diseases and their mode of transmission.

Virus



Transactional Strategy

Teaching-Learning method

Classroom Situation

- Read and explain to students what virus is. Talk to them on the diseases caused by virus.



- Ask students to discuss among their friends and find out the diseases caused by virus and the vaccinations for it.



Assessment

Answer the following questions.

1. Pulses are a good source of
2. Iodine deficiency causes
3. Why do we need food?
4. Which nutrient is called the body-building food?
5. Vitamin C helps system of our body.

HOTS

1. Why do most of the fruits taste sweet?
2. Why do some fruits taste sour?

Teacher's note

- ❖ Fruits taste sweet because they contain glucose and other sugars.
- ❖ Some fruits taste sour due to the presence of certain acids and vitamin C.

Activity

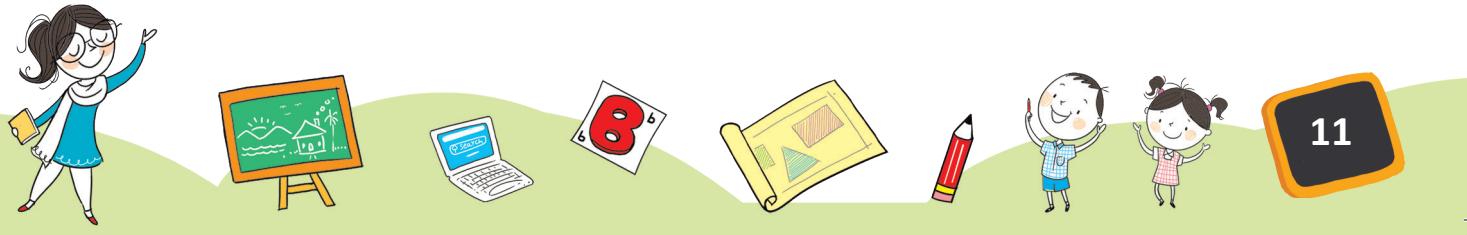
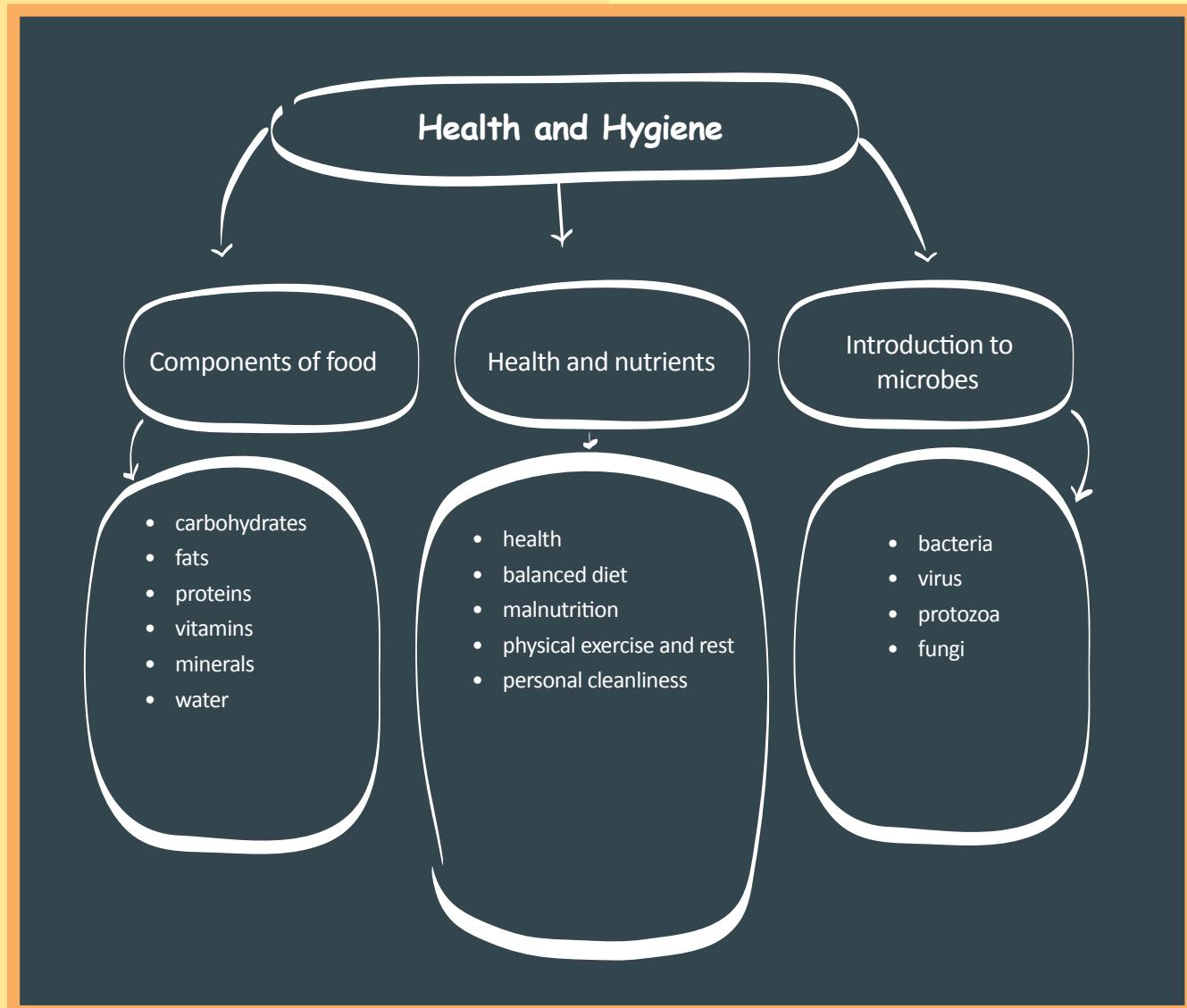
Ask students to prepare a chart showing nutritive values of one locally available fruit.

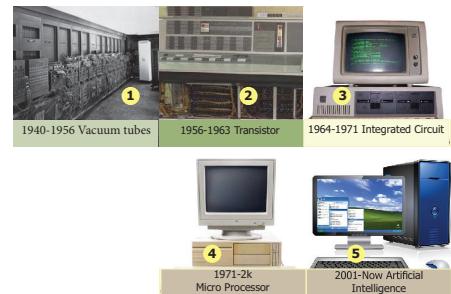
Self-Evaluation

- ❖ I can understand the importance of health and hygiene.
- ❖ I know the importance of balanced diet.
- ❖ I know the requirement of protein, vitamins, fat, water, carbohydrates, and minerals. These play a very important role in my growth and development.
- ❖ I know to keep myself and my surroundings clean.
- ❖ I understand the effects of microbes such as bacteria and virus.
- ❖ I have to stay healthy and fit by exercising and taking adequate rest.



Mind Mapping





7 Computer— An Introduction



Teaching / Learning tools

pencils, chart paper, chalks, blackboard, computer, MS word, MS excel, Internet

MON	TUE	WED	THU	FRI



Spotlight

- ◆ Acquire knowledge on the necessity of using computer in our daily life.
- ◆ Understand the hardware and software.
- ◆ Get to know about the operating systems.



Learning Objectives

At the end of the lesson, students will be able to

- ◆ know the basics of computer
- ◆ understand the applications of computer
- ◆ apply the knowledge of computer in various fields
- ◆ understand the growth and development of computers by knowing their generations
- ◆ learn the two types of software



Learning Outcomes

Through the course of the lesson, students will be able to

- ◆ identify the applications in computer
- ◆ learn how to use word/excel/MS paint
- ◆ browse using Google
- ◆ identify the input and output devices
- ◆ differentiate hardware and software



Transactional Strategy

Teaching-Learning method

- ❖ Train the students to type in a word document and show them how to save it.
- ❖ The teacher can also train them on how to use excel sheets.
- ❖ Ask students to try browsing in Google and search the topics of their interest.
- ❖ Show them what an e-mail is and how to send and receive e-mails.



Classroom Situation

Try the following activities in MS word

- ❖ In Microsoft Word, type some random words using various font sizes, styles, and different colours. Then, go to the Text Effect tab and observe how the typed words look in Blinking Background, Shimmer, and Sparkle Text.



Teaching-Learning method

- ❖ Advise them to use MS Paint and draw pictures. Encourage them to take print out of it and show it to their classmates.
- ❖ Teachers can also show students how to browse and play music and movies using computers.

Classroom Situation

- ❖ Type in a word and by using the 'copy' and 'paste' commands repeat the words again and again.
- ❖ Write some words using the Webdings font or any other all-symbol typeface. Ask the students to decode the message. To remove the code, the students should simply highlight the text and change it back to regular font.

Hardware



Transactional Strategy

Teaching-Learning method

- ❖ Start the class by asking students to identify the computer hardware in the classroom. Allow students to share their findings. After they identify it, start exploring the hardware in detail.
- ❖ You can put the students in groups or pairs and make them go through the basic hardware terms/pictures.
- ❖ At the end of the session, ask students to complete the quiz provided and then review the answers.
- ❖ Once students become aware of the basic computer hardware, the teacher can try getting an old computer and dismantle it. This would help the students to get more hands-on experience.



Classroom Situation

Get the following ready for learning:

- ❖ Materials required: computer with Internet connection, projector
- ❖ Prepare a slide for presentation with the pictures given below:
 - desktop
 - computer case
 - laptop
 - tower
 - keyboard
 - monitor
 - mouse
 - internal hard disk drive
 - central processing unit (CPU)
 - expansion slots
 - optical disk drive
 - motherboard
 - mass storage device
 - main memory
 - power supply unit



Software



Transactional Strategy

Teaching-Learning method

- ❖ In the classroom/laboratory, show them the operating softwares such as Windows and Linux.
- ❖ Show them some application software such as painting software and let them play games on the computer.



Classroom Situation

This will help them to know the difference between operating software and application software.

Group activity

- Divide the class into four groups. Each group can make a basic hardware device such as monitor, keyboard, CPU, and mouse. This will help them know the basic hardware devices of a computer.
- Encourage them to make other devices such as laptop, motherboard, expansion slots, and so on. This will help them learn more about computers.



<https://www.youtube.com/watch?v=PEPfJL1SzjA>

(Video: Difference between Hardware and Software)

Assessment

The teacher can conduct a quiz with the following questions to measure the students' level of understanding:

1. What are some common input devices for a computer system?
 - a. keyboard, mouse, and image scanner
 - b. keyboard, mouse, and printer
 - c. monitor, printer, and microphone
 - d. keyboard, microphone, video camera, and printer
2. What is typically considered the most important hardware element of a computer system?
 - a. motherboard with the central processing unit and main memory
 - b. hard disk drive
 - c. monitor
 - d. keyboard



3. What are the common input devices of a computer?
- a. microphone, monitor, and printer
 - b. microphone, keyboard, video camera, and printer
 - c. mouse, printer, and keyboard
 - d. mouse, keyboard, and image scanner
4. What do you call a portable computer?
- a. laptop
 - b. booktop
 - c. RAM
 - d. CPU
5. Which is the operation system that is used the most?
- a. Windows 1.0, 2.0, 3.0, 3.0 NT, 95, 98, NT, ME, 2000, XP
 - b. Linux
 - c. MAC OX 10 Snow Leopard
6. Which search engine is used the most?
- a. Yahoo
 - b. Bing
 - c. Google
 - d. SOSO
7. What do you use to connect the Internet?
- a. CPU
 - b. mouse
 - c. modem
 - d. software
8. What do you use for typing?
- a. mouse
 - b. keyboard
 - c. CPU
 - d. arrow
9. Which among these is a software?
- a. trackball
 - b. scanner
 - c. Internet Explorer
 - d. keyboard
10. In the simplest terms, a computer is a machine that stores and processes
- a. the Operating System
 - b. data
 - c. games
 - d. pictures



Self-Evaluation

- ✧ I am able to understand the difference between hardware and software.
- ✧ I can now identify tasks that would be easier to perform on a desktop.
- ✧ I now know that in some instances using a laptop might be more beneficial than a desktop.
- ✧ I understand the difference between operating software and application software.

Mind Mapping

